

piezoelectric effect ..." on page 99, line 25, to page 100, line 1.

This rejection of independent claims 1 and 20 is respectfully traversed. The phrase "generating a piezoelectric effect" means that a permanent potential gradient is caused by the strain, as discussed on page 2, line 3, to page 3, line 22; page 5, lines 9-20; and page 6, line 15, to page 7, line 1, of the specification.

A potential gradient due to the piezoelectric effect is a phenomenon occurring regardless of bias conditions. The direction of strain by which a permanent potential gradient is caused due to the piezoelectric effect is described in detail on page 89, line 17, to page 92, line 25, of the specification. Therefore, there is no indefiniteness in this claim recitation.

In paragraph 7 of the Office action, the Examiner rejects claims 8 and 27 due to the recitation "said strain generating a piezoelectric effect includes a strain for extending said light emitting layer in an in-plane direction of said light emitting layer." The Examiner asks "Does this mean a tensile strain is developed?"

The rejection of claims 8 and 27 is respectfully traversed. Claim 8 only further limits the strain of claim 1 in terms of the direction of the strain and claim 27 only further limits the strain of claim 20 in terms of the direction of the strain.

In paragraph 8, the Examiner rejects claims 13-19 and 32-38 regarding the recitation that "acceptor levels and/or donor levels are nonuniformly formed ..." The Examiner questions the energy levels of the acceptors and whether the intended recitation was that the concentration of acceptors (rather than acceptor levels) is nonuniform.

The rejection of claims 13-19 and 32-38 is respectfully traversed. The recitation regarding the levels being nonuniformly formed refers to the spatial location of the levels, but does not mean that acceptors or donors are at different energy levels. This may be seen from the disclosure in the specification. The specification discusses the nonuniformly formed levels on page 24, lines 1-15. In addition, the specification consistently refers to the "concentration of acceptor levels" in terms of number per unit volume, and has additional wording indication that the levels themselves have a spatial location.

Regarding paragraph 9 of the Office action, the rejection of claim 35 is overcome by the amendment to claim 35, in which "said well layer" in original line 3 of the claim has been amended to –said barrier layer–.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact Applicant's undersigned Agent at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

Attached hereto is a marked-up version of the changes made by the current amendment. The attached page is captioned "**Version with markings to show changes made.**"

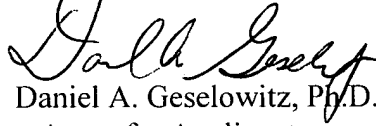
Amendment under 37 CFR 1.111  
Masayuki HATA

U.S. Patent Application Serial No. 09/745,998  
Attorney Docket No. 001699

In the event that this paper is not timely filed, Applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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Enclosures: Version with markings to show changes made

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**VERSION WITH MARKINGS TO SHOW CHANGES MADE**

**IN THE SPECIFICATION:**

Please amend the specification as follows:

Please replace the paragraph beginning on page 34, line 9, with the following rewritten paragraph:

As shown in Fig. 7, an n-type layer of the opposite conduction type 9 composed of GaN having a wider bandgap than that of the MQW light emitting layer 8 and having donor levels formed therein is formed on the side of a [0001] direction, that is, on the higher-energy side of the energy band of the MQW light emitting layer 8. The bandgap of the n-type layer of the opposite ~~conduction~~ conduction type 9 is narrower than the bandgap of the p-type cladding layer 10 composed of p-AlGa<sub>N</sub>, so that the refraction index of the n-type layer of the opposite conduction type 9 is higher than the refractive index of the p-type cladding layer 10. Consequently, the n-type layer of the opposite conduction type 9 also functions as an optical guide layer.

Please replace the paragraph beginning on page 37, line 1, with the following rewritten paragraph:

As shown in Fig. 9, an n-type layer of the opposite conduction type 9 composed of GaN having a wider bandgap than that of the MQW light emitting layer 8 and having donor levels formed therein is formed on the side of a [0001] direction, that is, on the higher-energy side of the energy band of the MQW light emitting layer 8. The bandgap of the n-type layer of the opposite ~~conduction~~ conduction type 9 is narrower than the bandgap of the p-type cladding alyer 10 composted of p-AlGa<sub>N</sub>, so that the refraction index of the n-type layer of the opposite conduction type 9 is higher

than the refractive index of the p-type cladding layer 10. Consequently, the n-type layer of the opposite conduction type 9 also functions as an optical guide layer..

**IN THE CLAIMS:**

Please amend claim 35 as follows:

35. (Amended) The light emitting device according to claim 32, wherein  
in said ~~well~~ barrier layer, more acceptor levels are formed in its portion in contact with an interface of said well layer on the side of said first n-type layer having a higher potential generated as a result of the piezoelectric effect than those in its portion in contact with an interface of said well layer on the side of said first p-type layer having a lower potential.